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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,949	01/10/2002	Matthew A. Bellew	41017.P006X	7485

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EXAMINER

PHAM, HUNG Q

ART UNIT	PAPER NUMBER
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2162

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,949	BELLEW, MATTHEW A.	
	Examiner	Art Unit	
	HUNG Q PHAM	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 9-19 and 28-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 20-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/14/02 & 5/5/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-8 and 20-27 in the reply filed on 09/17/2004 is acknowledged.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 03/14/2002 and 05/05/2003 was filed before the mailing date of the first Office Action. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

- Claim 5 is objected to because of the following informalities: aggegration *function* (*aggregation function*). Appropriate correction is required.
- Claims 6 and 25 recite a redundant limitation, which was claimed in claims 1 and 20: *one or more JOIN clauses respectively joining said grouped derivative table and said one or more target tables*. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

- As set forth in MPEP 2106 (II) (A):

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); In re Ziegler, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)). Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful.

Apart from the utility requirement of 35 U.S.C. 101, usefulness under the patent eligibility standard requires significant functionality to be present to satisfy the useful result aspect of the practical application requirement. See Arrhythmia, 958 F.2d at 1057, 22 USPQ2d at 1036. Merely claiming nonfunctional descriptive material stored in a

computer-readable medium does not make the invention eligible for patenting. For example, a claim directed to a word processing file stored on a disk may satisfy the utility requirement of 35 U.S.C. 101 since the information stored may have some "real world" value. However, the mere fact that the claim may satisfy the utility requirement of 35 U.S.C. 101 does not mean that a useful result is achieved under the practical application requirement. The claimed invention as a whole must produce a "useful, concrete and tangible" result to have a practical application.

The method of claim 1 can be implemented with a pencil, and a piece of paper that contains a data table. Further, the language of claim 1 raises a question as to whether the claimed method is directed merely to an abstract idea that is not tied to a technological art, environment, or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. § 101. Therefore, the claimed invention is non-statutory subject matter. The claim should be amended to indicate the subject matter is implemented by a computer, i.e., a computer implemented method.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 7, 20 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claims 1 and 20 recite the limitation *grouped non-looked-up table fields* and *aggregated table fields* in the step of generating a SQL statement. There is insufficient antecedent basis for this limitation in the claim.
- Claims 7 and 26 recite the limitation *said aggregation function*. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 8, 20-23 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Mandan et al. [USP 6,748,378 B1].

Regarding claims 1 and 20, Mandan teaches a method and an apparatus that can automatically generate a SQL statement for a search filter (Abstract).

- To generate a SQL statement for LDAP search filter, as illustrated at FIG. 15, a search request or *data processing statement* as below *is parsed* to generate a SQL statement includes a header section, body portion and closing section (Col. 18, Lines 30-58).

```
( | (& (& (Manager="John*") (Tel No.="555*")) (FirstName="Jim"))  
(LastName="Smith"))  
Base: Org.=Oracle  
Scope=subtree search
```

- The parsing process is to generate an expression tree as illustrated at FIG. 14A (Col. 18, Lines 43-46). The tree is examined as illustrated at

FIG. 17B, and each leaf node will have a corresponding SQL statement using the following template (Col. 21, Lines 30-33):

```
SELECT EID FROM <CatalogTable>
WHERE
CatalogTable.AttrVal=value of search term
```

and a SQL statement for the three leaf nodes of the expression tree is created as below (Col. 25, Lines 33-54):

```
SELECT distinguished_name.EID,                               /*header section */
store.AttrName, store.AttrVal
FROM attribute_store store, distinguished_name dn
WHERE
dn.EID IN (          /* FilterCondition header */
( /* start group marker */
SELECT EID FROM ct_lastname at1      /* template for subtree */
WHERE at1.AttrVal = 'Smith'          /* rooted at node 1414 */
UNION /* conjunction marker */
( /* start group marker */
SELECT EID FROM ct_firstname at2     /* template for subtree */
WHERE at2.AttrVal = 'Jim'            /* rooted at node 1418 */
INTERSECT /* conjunction marker */
SELECT EID FROM ct_manager at3, ct_tel at4 /* template for
WHERE at3.AttrVal like 'John%'        /* subtree rooted
AND at4.AttrVal like '555%'           /* at node 1438
AND at3.EID=at4.EID
) /* end group marker */
) /* end group marker */
) /* FilterCondition closing section */
```

As seen, in the technique of creating the SQL for the leaf nodes from the search request, the WHERE and SELECT statement are used to *identify* the AttrValue fields and EIDs as *table fields*, for example SELECT EID FROM ct_lastname at1 WHERE at1.AttrVal = Smith, the AttrValue fields are *look-up fields* and *determined* by the search values. The EID is considered as *non-looked up field* and is *a member of* distinguished name table illustrated at FIG. 7 as *basis table*, which is *identified* by a FROM statement: FROM distinguish_name dn. The Attribute Store Table illustrated at FIGS. 4-5 contain AttrValue fields is considered as *target table* from which AttrValue fields as *look-up fields*

are to be looked up by the WHERE statement. The Attribute Store Table as *target table, from which looked-up fields are to be looked-up, and identified* by the statement: FROM attribute_store store. In other words, the technique as discussed performs the step of *identifying table field or fields referenced in said data processing statement; for each identified table field, determining whether the table field is a looked-up field; identifying a basis table of which non-looked up ones of said identified table field or fields are members; identifying one or more target tables from which said looked-up one or ones of said identified table field or fields are to be looked up.*

- Mandan further discloses that the sub tree conditions is examined to determine an AND or OR operator to determine whether the INTERSECT or UNION operation will be utilized to aggregate the result of two sub tree conditions (Col. 20, Line 65-Col. 21, Line 9) as the step of *identifying whether an aggregation operation is to be performed on row values of each of the identified table fields.*
- The generated SQL that includes a header section, body portion and closing section for the search request as illustrated below (Col. 27, Lines 1-25):

Art Unit: 2162

```

SELECT distinguished_name.EID,           /*header section */
store.AttrName, store.AttrVal
FROM attribute_store store, distinguished_name dn
WHERE
dn.EID IN (           /* FilterCondition header */
  (/* start group marker */
    SELECT EID FROM ct_lastname at1      /* template for subtree */
    WHERE at1.AttrVal = 'Smith'         /* rooted at node 1414 */
    UNION
    (/* start group marker */
      SELECT EID FROM ct_firstname at2   /* template for subtree */
      WHERE at2.AttrVal = 'Jim'          /* rooted at node 1418 */
      INTERSECT /* conjunction marker */
      SELECT EID FROM ct_manager at3, ct_tel at4 /* template for */
      WHERE at3.AttrVal like 'John%'      /* subtree rooted */
      AND at4.AttrVal like '555%'         /*at node 1408 */
      AND at3.EID=at4.EID
    ) /* end group marker */
  ) /* end group marker */
) /* FilterCondition closing section */
AND (dn.parentdn like :bdn OR (dn.eda like :rtn /* closing section */
AND dn.parent dn like :pdn))
AND dn.EID=Store.EID
AND dn.EID >= :entryThreshold
ORDER BY store.EID

```

As seen, the *generated SQL statement includes a FROM clause:*

FROM attribute_store store, distinguished_name dn

having

```

  (/* start group marker */
    SELECT EID FROM ct_lastname at1      /* template for subtree */
    WHERE at1.AttrVal = 'Smith'         /* rooted at node 1414 */
    UNION
    (/* start group marker */
      SELECT EID FROM ct_firstname at2   /* template for subtree */
      WHERE at2.AttrVal = 'Jim'          /* rooted at node 1418 */
      INTERSECT /* conjunction marker */
      SELECT EID FROM ct_manager at3, ct_tel at4 /* template for */
      WHERE at3.AttrVal like 'John%'      /* subtree rooted */
      AND at4.AttrVal like '555%'         /*at node 1408 */
      AND at3.EID=at4.EID
    ) /* end group marker */
  ) /* end group marker */
) /* FilterCondition closing section */
AND (dn.parentdn like :bdn OR (dn.eda like :rtn /* closing section */
AND dn.parent dn like :pdn))

```

for creating a table of EID from specified catalog tables as *a sub query for*

creating a grouped derivative table comprising EID >= :entryThreshold

as grouped non-looked-up table fields, and EID in ct_lastname UNION

EID in ct_firstname and ct_manager as *aggregated table fields.*

The statement:

AND dn.EID = Store.EID

as join clause joining Attribute Store Table Store as corresponding one or more target tables to the table of EID from specified catalog tables as grouped derivative table.

- As illustrated at FIG. 16, the expression tree is walked to output the header of the SQL statement (Col. 18, Lines 59-63). As illustrated at FIG. 17 is the process of outputting the body of the SQL (Col. 19, Lines 6-7). The node of expression tree is evaluated to determine whether the node is a base condition (Col. 19, Lines 43-44). As defined by Mandan, a base condition is a contiguous section of an expression tree contains only zero or one of AND or OR condition operators (Col. 19, Lines 45-51) to determine whether the INTERSECT or UNION operation will be utilized to aggregate the result of two sub tree conditions (Col. 20, Line 65-Col. 21, Line 9). Each type of base condition has a corresponding query template (Col. 21, Lines 25-26), and for INTERSECT and UNION operation, the template is illustrated below (Col. 22, Lines 9-15):

```
SELECT at1.EID
FROM CatalogTable1 at1, CatalogTable2 at2
WHERE at1.EID=at2.EID
And at1.AttrVal like `SEARCHVALUE1`
And at2.AttrVal like `SEARCHVALUE2`
```

```
SELECT at1.EID
FROM CatalogTable1 at1
WHERE at1.AttrVal like `SEARCHVALUE1`
UNION
SELECT at2.EID
FROM CatalogTable2 at2
WHERE at2.AttrVal like `SEARCHVALUE2`
```

As seen, the body of the SQL statement is generated by evaluating the search request in the form of expression tree to determine a node with one or more table fields, each node will have a corresponding SQL, and to have INTERSECT or UNION operation for aggregating the values. In short, the technique as discussed perform the condition of generating SQL statement: *if the data processing statement is determined to contain first one or more table fields to have aggregation operations performed on their row values.*

Regarding claims 2 and 21, Mandan teaches all of the claimed subject matter as discussed above with respect to claims 1 and 20, Mandan further discloses the step of *determining whether the table field is a multi-part table field including at least a first part corresponding to a look-up field, and a second part corresponding to a field to be looked up, concatenated with said first part in a predetermined manner* (at1.AttrVal).

Regarding claims 3 and 22, Mandan teaches all of the claimed subject matter as discussed above with respect to claims 2 and 21, Mandan further discloses the step of *determining whether the second part is a look-up field, with a third part corresponding to a looked up field concatenated with said second part in a predetermined manner* (WHERE at1.AttrVal).

Regarding claims 4 and 23, Mandan teaches all of the claimed subject matter as discussed above with respect to claims 2 and 22, Mandan further discloses: *second part*

corresponding to a field to be looked up, is concatenated with said first part corresponding to a look-up field, employing one or more predetermined special characters (at1.AttrVal).

Regarding claims 8 and 27, Mandan teaches all the claim subject matters as discussed above with respect to claims 1 and 20, and further discloses *SQL statement is a selected one of a SELECT, an INSERT, an UPDATE and a DELETE statement* (Col. 27, Lines 1-25).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mandan et al. [USP 6,748,378 B1], as applied to claims 1, 4 and 20, in view of Silberschatz et al. [Database System Concepts].

Regarding claims 5 and 24, Mandan teaches all of the claimed subject matter as discussed above with respect to claims 4 and 20, Mandan further discloses the step of *generating said sub query in a form of a SELECT statement enumerating identified table fields of said basis table, including the aggregation functions to be performed on applicable*

ones of the identified table fields, including with said SELECT statement a first FROM clause enumerating said basis table (Col. 27, Lines 1-25), but fails to teach *a GROUP BY clause enumerating again said enumerated table field or fields of the basis table that have not been identified as having aggregation functions to be performed*. However, GROUP BY is a predefined function in SQL for *enumerating again said enumerated table field or fields of the basis table that have not been identified as having aggregation functions to be performed*. (Silberschatz, Database System Concepts, page 123). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to include a GROUP BY function in order to group a result from the SELECT statement.

Regarding claims 7 and 26, Mandan teaches all of the claimed subject matter as discussed above with respect to claims 1 and 20, but does not explicitly disclose the claimed *aggregation function is a selected one of a counting function (COUNT), a minimum value identification function (MIN), a maximum value identification function (MAX), an average value computing function (AVG) and a value summation function (SUM)*. However, aggregation functions, such as *COUNT, MIN, MAX, AVG, and SUM*, are a predefined function in SQL (Silberschatz, Database System Concepts, page 122). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to include an aggregation function in the step of generating SQL in order to return a single value from a collection of values.

Allowable Subject Matter

Claims 6 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance.

Regarding claims 6 and 25, USP 6,748,374, issued to Mandan et al., also teaches the claimed invention method and apparatus, but Mandan et al. fails to disclose or suggest the step of *enumerating field or fields to be selected from said grouped derivative table and said one or more target tables, a second FROM clause enumerating said sub query, an AS clause enumerating an identifier of the grouped derivative table.*

Art Unit: 2162

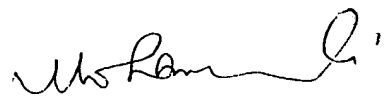
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG Q PHAM whose telephone number is 571-272-4040. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN E BREENE can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Hung Pham
December 30, 2004


M. Ali
Primary Examiner